

Determinants of Digital Competence Development Among Agricultural MSMEs for Business Sustainability: A Case Study of Lombok Island, Indonesia

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MSMEs in West Nusa Tenggara Province are currently experiencing a consistently positive growth trend each year. However, the increase in the number of MSME actors cannot be separated from various issues such as the development of digital technology, which has not yet been fully utilized and is still less active in using digital technology in their business activities. Therefore, it is necessary to conduct a study on what internal and external factors influence the development of digital competence among agricultural MSME actors on Lombok Island, and how digital competence influences business sustainability. The research method used is a mixed methods approach (quantitative and qualitative), utilizing both primary and secondary data collected through questionnaires, observations, and interviews with 211 MSME actors in the agricultural sector, focusing on agricultural product processing. Quantitative data analysis was conducted using SEM SmartPLS 4.0. The study results indicate that digital competence is affected by internal factors such as demographics, motivation, perception, and creativity, while external factors include customer purchasing behaviour, government support, and the quality of mentoring. Both internal and external factors have a significant contribution to enhancing digital competence. Meanwhile, digital competence has a very strong effect on business sustainability, meaning that an increase in digital competence can significantly enhance the level of business sustainability. However, more specific studies are still needed, such as the influence of social and cultural factors in adopting digital technology by MSMEs in the agricultural sector on Lombok Island.

Keywords: Digital technology, e-commerce, digital competence, Agricultural MSMEs, business sustainability, marketing operations.

INTRODUCTION

Digital technology has revolutionized human activities, shifting many processes to online platforms and transforming economic landscapes worldwide. The development of digital technology can contribute to the progress of a nation's society by fostering the emergence of a digital society (World Economic Forum, 2018). Furthermore, digital technology can provide added value for business actors by making operations more efficient, effective, and fast (Suparno *et al.*, 2020). One of the changes in consumer shopping methods has been the shift from conventional shopping to online shopping (Aprianto, 2021). The current trend in technological development has had a positive impact on business actors, particularly in digital product marketing (Setiawan, 2017),

leading to the emergence of the electronic commerce (e-commerce) era. E-commerce enables the sale of products or services online and allows businesses to reach a broader market without geographical limitations (Berutu *et al.*, 2024). This presents both challenges and opportunities for MSME actors to compete and expand into new markets in the digital era, ensuring the sustainability of their businesses in the future.

The steps that MSME actors, particularly in the agricultural sector, need to take include being responsive to these changes, starting from the marketing aspect, providing information to customers quickly, maintaining customer loyalty, and delivering faster services to consumers (Asakdiyah *et al.*, 2023). Therefore, knowledge and competence are required to develop information technology skills related to digital

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competence (Eikebrokk, and Olsen 2007). Digital competence is a set of knowledge and skills that enables individuals to utilize information and communication technology effectively. It also involves the ability to address various challenges and complex tasks efficiently and effectively within a digital environment (Bawden 2001; Jones, and Hafner 2021).

Digital competence is a crucial asset for MSME actors today, as it represents a combination of knowledge, abilities, attitudes, skills, awareness, and strategies required to adopt digital technology (Janssen *et al.*, 2013). Therefore, the development of digital competence is essential to support tasks related to providing and managing information, communication, designing and sharing content, security, problem-solving, collaboration, and building knowledge in an efficient, effective, creative, flexible, independent, and critical manner (Vieru *et al.*, 2015). The development of digital competence is currently one of the essential skills that MSME actors, particularly in the agricultural sector, must master. According to the 2023 Indonesian Digital Society Index (IMDI) survey, MSMEs in West Nusa Tenggara (NTB) are still not actively utilizing digital technology (IMDI, 2023). Several studies on the utilization of digital technology by MSME actors in NTB, particularly on Lombok Island, have identified issues such as marketing challenges among MSMEs in Mataram City, as many business actors are still technologically illiterate (Suryati *et al.*, 2023). A similar situation is observed in West Lombok Regency, where MSME actors still rely on conventional methods for marketing their products (Dewi, 2023). The same issue also occurs in North Lombok Regency, where many business actors continue to market their products conventionally due to limited knowledge about online marketing (Nabilah *et al.*, 2022). Meanwhile, the issue faced by MSMEs in East Lombok Regency is the low level of competence in the labeling and packaging process, which affects product attractiveness. Additionally, digital marketing has not yet been utilized in this area (Kurniawan *et al.*, 2023). A similar issue is found in Central Lombok Regency, where MSME competence is hindered by several factors, one of which is the dominance of high school-level education among MSME actors. This has a significant impact on MSME performance (Al Qifari 2022).

Based on the description of the problems of MSMEs in Lombok Island, there are aspects of marketing that are still carried out conventionally because they have not utilized digital technology. So, it is necessary to have a competency development model for MSME actors, especially MSME actors in the agricultural sector, to adopt digital technology in the product marketing process so that MSME actors are able to face increasingly competitive business competition, increase business competitiveness, expand market reach, and ensure business sustainability. Sustainable SMEs can now be achieved through the digital transformation process (Melo *et*

al., 2023). According to Shalamanov *et al.* (2020), in general, the ICT competency development model can be carried out through an innovative e-learning approach.

To support business sustainability, mastering digital competence is essential from both the internal and external perspectives of MSME actors. In general, there are two factors affect an individual's ability to develop their competence: internal factors, which are innate and genetically determined, and external factors, which influence an individual's ability to develop competence cumulatively from childhood, such as education and experiences acquired throughout their lifetime (Hutapea and Thoha, 2008). In the field of measuring MSME performance, Munizu (2010), said that external factors such as government policies, social, religious, and economic factors, as well as organizational factors affect internal factors, while internal factors such as Human Resources, finance, market production technology, and sales have a positive influence on MSME performance. The presence of these supporting factors has a significant impact on utilizing digital technology.

The expected digital competence is a combination of knowledge, skills, abilities, awareness, strategies, and mental attitudes of agricultural sector MSME actors in utilizing digital technology. The expected development of digital competence is that agricultural sector MSME actors can communicate online, manage information via the internet, collaborate with partners, create and share digital content on social media, maintain the security of personal data, and solve problems caused by the development of digital technology. To develop the digital competence of agricultural sector MSME actors, a study needs to be conducted in order to obtain a development model and what factors influence the development of digital competence. According to Patma *et al.* (2021) stated that the most important thing in accelerating MSME actors to adopt technology is having a perception of utilization, practicality and cost.

Based on the theoretical framework of competence outlined above, this serves as one of the foundations for conducting this study. However, this study still faces limitations in empirical research, necessitating a more in-depth analysis regarding the digital competence development model based on external and internal factors within the MSME sector, particularly among MSME actors in the agricultural sector on Lombok Island, West Nusa Tenggara (NTB).

MATERIALS AND METHODS

This study focused on the factors that affected the digital competence of MSME actors in the agricultural sector for business sustainability, through the relationship between independent and dependent variables. The method employed was a mixed method, conducted in two stages (Creswell and Creswell, 2018). The first stage involved data collection through the distribution of questionnaires (quantitative), the



second stage used a qualitative method, gathering data through observations, direct interviews with MSME actors, and document studies.

The independent variables originated from internal factors with indicators including demographics, business scale, motivation, perception, and creativity, while external factors had indicators such as technology devices, purchasing behavior, government support, partnerships, and the quality of mentoring.

The dependent variables consist of digital competence variables that include information, communication, digital content creation, technical skills, security, problem-solving, and collaboration. Meanwhile, the business sustainability variables include product quality, competitiveness, business progress, business profitability, business environment conditions, and customer satisfaction. These research variables were measured using instruments with ordinal measurement methods based on the Likert scale.

The data analysis methods used include descriptive analysis and SEM (Structural Equation Modeling) using SmartPLS 4.0. The steps involved in the analysis include validity and reliability tests, descriptive analysis, partial test analysis, determination coefficient testing, and hypothesis testing (Hair *et al.*, 2019).

RESULTS

Descriptive analysis of MSME actors: Based on the characteristics of respondents, namely gender, age, formal education, non-formal education, type of device owned, device used to access the internet, social media owned, e-commerce used, length of business, business entity, number of employees, amount of profit and amount of assets. From the results of the grouping, the researcher found several descriptions of the characteristics of respondents in the agricultural sector MSMEs as Table 1.

From Table 1 characteristics of the respondents, the MSME actors in the agricultural sector on Lombok Island, according to the current positions of the respondents, are entirely business owners, accounting for 100% of the 211 respondents in this study, with 74% being women. This indicates that business management is dominated by women, meaning that women play a very dominant role in running agricultural sector MSMEs on Lombok Island. In terms of age, the dominant group is 31-40 years old, making up 43% of the respondents. This suggests that the millennial generation has a keen interest in entrepreneurship, generally considering this age as the most productive period when individuals have sufficient work experience, a broad network, and high energy to start and run a business. The age range of 22 to 44 years is considered the most productive period for entrepreneurship (Tsorbatzoglou *et al.*, 2001).

The level of formal education is dominated by basic graduates at 66%. This indicates that most MSME actors have sufficient

formal education to run a business because the opportunity to run an agricultural processing business on Lombok Island is still easy in terms of obtaining raw materials. While non-formal education, namely participation in digital technology training, with a duration of 1 to 3 times, 50% of MSME actors have attended training. This indicates that most MSME actors have tried to improve their skills and knowledge through training.

Table 1 Demographic data of MSME actors in the agricultural sector on Lombok Island.

Demographics	Characteristics	f	%age
Position	Owner	211	100%
	Employee	0	0%
Gender	Woman	157	74%
	Man	54	26%
Age	20-30 years	16	8%
	31-40 years	91	43%
	41-50 years	51	24%
	>51 years	53	25%
Formal education	No school	6	3%
	Elementary /Middle /High School	140	66%
	Diploma	10	5%
	Bachelor	55	26%
Non-formal education	Never	86	41%
	1 – 3 times	106	50%
	4-7 times	11	5%
	>8 times	8	4%
Type of device owned	Computer	0	0%
	Laptop	41	19%
	Tablet	4	2%
	Mobile Phone	211	100%
Devices used to access the internet	Internet	28	13%
	Etc	0	0%
	Modem	3	1%
	Mobile Phone (HP)	204	97%
Owned social media	Indihome/similar	37	18%
	No internet access	4	2%
	WhatsApp	196	93%
	Facebook	156	74%
e-Commerce used	Instagram	65	31%
	TikTok	36	17%
	Telegram	6	3%
	X	3	1%
	Youtube	6	3%
	Do not have	12	6%
	Shopee	149	71%
	Lazada	5	2%
	Open	2	1%
	Tokopedia	11	5%
	Etc	59	28%

SEM analysis

a) Measurement Model (outer model):



The testing of the reflective measurement model consists of convergent validity, discriminant validity, composite reliability, and Cronbach's alpha (Hair *et al.*, 2019).

Internal factors: The results of the convergent validity test on the internal factor variables show a value of 0.651, which is greater than > 0.05 , indicating a good level of convergent validity. The reliability of the variables is acceptable with Cronbach's alpha and composite reliability values above 0.70 (reliable), or their internal consistency is acceptable. The outer loading value for the motivation indicator, measuring the desire of agricultural sector MSME actors on Lombok Island to compete in an increasing digital market, is 0.763, indicating that the motivation of MSME actors still needs to be enhanced.

Meanwhile, for the perception indicators, the highest outer loading values range from 0.810 to 0.820, indicating that the use of digital technology by MSME actors in the agricultural sector on Lombok Island has been beneficial and has facilitated their business activities. However, perceptions related to profit enhancement (0.782), self-confidence (0.716), and interest (0.788) in adopting digital technology show good values but still need to be accelerated for improvement. As for the creativity variable, with outer loading values ranging from 0.837 to 0.873, this indicates that the creativity of MSME actors has a high correlation with the perception of agricultural sector MSME actors on Lombok Island. This should be maintained but also enhanced.

External factors: The aspect of customer purchasing behavior has outer loading values ranging from 0.717 to 0.749, indicating that aspects such as online product payment systems and customer feedback or suggestions regarding products still need to be enhanced for improvement. Meanwhile, the government support indicator, with outer loading values ranging from 0.755 to 0.892, suggests that the variable has a high level of correlation. However, certain areas still require improvement, particularly regarding the provision of digital technology devices by the government to support the utilization of digital technology. This would help accelerate the production process for MSME actors in the agricultural sector.

The quality of mentoring, with outer loading values ranging from 0.772 to 0.913, indicates that this indicator has a high level of correlation. This reflects a strong value; however, it still needs to be enhanced for further improvement, as MSME actors in the agricultural sector on Lombok Island expect to receive a guideline book during the mentoring process.

Digital competence: The results of the convergent validity test analysis for the digital competence variable include the information indicator, with outer loading values ranging from 0.760 to 0.800. This indicates a good level of correlation, as MSME actors are already able to store information obtained from the internet using their digital devices. However, in aspects such as understanding, searching for, and verifying the accuracy of information, the values are good but still need

to be accelerated for further improvement. Meanwhile, for the communication indicator, with outer loading values ranging from 0.750 to 0.782, all measurement parameters under this indicator exhibit a strong correlation. However, their capabilities still need to be accelerated for enhancement.

The content creation indicator for business actors, with outer loading values ranging from 0.823 to 0.889, indicates that all measurement items have a strong correlation. This suggests that MSME actors in the agricultural sector can store and create content using their digital devices; however, further improvement is still needed. For the technical skills indicator, with outer loading values between 0.750 and 0.841, the results show a good correlation with technical skill indicators, such as the ability to access various digital platforms and operate web browser applications that support their business. However, aspects related to the ability to connect digital devices to the internet, operate, and understand technical terms in digital technology still need to be accelerated for further improvement.

The security indicator, with outer loading values ranging from 0.811 to 0.814, indicates that all measurement items have a strong correlation. This suggests that business actors are already capable of protecting their digital devices and social media accounts by regularly adjusting privacy settings, such as changing passwords or PINs on their digital devices. Meanwhile, for the problem-solving indicator, with outer loading values between 0.794 and 0.848, the results show a good correlation across all measurement items. This suggests that business actors possess problem-solving skills. However, in aspects related to self-development and keeping up with digital evolution, further acceleration is needed to enhance their capabilities.

For the collaboration indicator, with outer loading values ranging from 0.816 - 0.879, the results indicate that business actors are already capable of sharing data, information, communicating, and creating digital content, as well as effectively explaining ideas or concepts to others through digital technology. However, further improvement and development are still needed.

Business sustainability: The competitiveness of business products has outer loading values ranging from 0.733 - 0.757, indicating that further acceleration is needed for improvement. Meanwhile, for business progress, with outer loading values of 0.834 and 0.866, the results suggest that business actors have already experienced the benefits of digital technology advancements, as evidenced by increased business productivity and a growing customer base. However, MSME actors need to further expand into new markets, both locally and internationally, through the utilization of digital technology. Therefore, further acceleration is required to enhance.

The business profitability indicator, with an outer loading value of 0.823, indicates that business actors have benefited from advancements in digital technology, which has helped



increase sales revenue, thereby improving business profitability. However, regarding the customer satisfaction variable, with outer loading values ranging from 0.761 to 0.848, the results suggest that business actors have utilized digital technology advancements to enhance their services, leading to increased customer satisfaction, which should be maintained. However, while faster delivery service contributes to higher customer satisfaction, it does not directly impact on the sales revenue of business actors. Therefore, further acceleration is needed to enhance their capabilities in this area.

Structural model testing (Inner Model): The structural model in PLS is evaluated using the Coefficient of Determination (R-Square, R^2) and Predictive Relevance (Q-Square, Q^2 Predict).

1. Coefficient of determination (R-Square)

The results of the R-Square analysis can be seen in Table 1.

Table 2. R-Square analysis results.

Variable	R^2	R^2 adjusted
Business Sustainability	0.381	0.378
Digital Competence	0.670	0.667

From Table 2 above, it can be explained that the business sustainability variable has an R-square value of 0.381, or approximately 38.1% of the variability in business sustainability can be explained by the independent variables in this study, while the remaining 61.9% is explained by other factors not included in this study. Meanwhile, the R-square adjusted value is 0.378, which is slightly lower than the R-square value, indicating that adding independent variables to the study will not significantly increase business sustainability in explaining variability.

The R-square value for the digital competence variable is 0.670, meaning that approximately 67% of the variability in digital competence can be explained by the independent variables in this study. This indicates that the study is fairly effective in explaining variability within this variable. Meanwhile, the R-square adjusted value is 0.667, which is also relatively high, indicating that adding independent variables in this study does not significantly improve the ability of the digital competence variable to generalize new data.

The results of the coefficient of determination (R-square) analysis indicate that the model for the digital competence variable has a better ability to explain variability in digital competence compared to business sustainability. This is demonstrated by the higher R-square value for digital competence. Although the model for digital competence is fairly strong, approximately 33% of the variability remains unexplained by the model. This suggests that there may be other factors that should be considered to improve the model's accuracy.

2. Predictive relevance (Q-Square)

The results of the Q-Square prediction analysis can be seen in Table 3.

Table 3. Q-Square predict analysis results.

Variable	Q^2 Predict
Business Sustainability	0.340
Digital Competence	0.629

From Table 2 above, it can be explained that the Business Sustainability variable has a Q-Square value of 0.340, indicating that this research model has moderate predictive relevance in predicting business sustainability. This means that the model can explain part of the variation in the Business Sustainability variable; however, there is still room for improvement.

Meanwhile, the Digital Competence variable has a Q-Square value of 0.629, indicating that this research model has strong predictive relevance in predicting the Digital Competence variable. This means that the research model can explain most of the variation in the Digital Competence variable and has good predictive capability. Overall, this research model demonstrates a fairly good predictive ability, especially for the Digital Competence variable. However, for the Business Sustainability variable, there is still potential to improve the model's predictive capability.

Hypothesis testing: The results of the hypothesis testing using the bootstrapping method are presented in Table 4.

Based on Table 4 above, it can be explained that the hypothesis regarding the relationship between external factors and digital competence has a Path Coefficient value of 0.472, indicating a strong positive relationship between external factors and digital competence. The p-value is 0.000, which is below 0.05, showing that this relationship is statistically

Table 4. Hypothesis testing results using bootstrapping.

Hypothesis	Path Coefficient	p-value	95% Confidence Interval for the Path Coefficient		T statistics (/O/STDEV/)	F square
			Lower Bound	Upper Bound		
External Factors → Digital Competence	0.472	0.000	0.383	0.559	10.524	0.435
Internal Factors → Digital Competence	0.437	0.000	0.351	0.515	10.192	0.374
Digital Competence → Business Sustainability	0.616	0.000	0.523	0.703	13.251	0.613



significant. This means that the higher the changes are made to external factors, the higher the digital competence of MSME actors. Within the 95% confidence interval, the effect of external factors in enhancing digital competence ranges between 0.383 and 0.559. This means that if there is a change or improvement in external factors, its impact on digital competence can increase up to 0.559. Additionally, it is significant, with a t-statistic value of 10.524, which is greater than 1.96. Nevertheless, the presence of external factors in improving digital competence has a high effect at the structural level, as indicated by an F-square value of 0.435. Meanwhile, the relationship between internal factors and digital competence is reflected in a Path Coefficient value of 0.437, indicating a strong positive correlation, although slightly weaker compared to the effect of external factors. The p-value of 0.000, which is below the 0.05 threshold, confirms that this relationship is statistically significant. This implies that an increase in internal factors corresponds to an increase in digital competence. Within the 95% confidence interval, the estimated effect of internal factors on digital competence ranges from 0.351 to 0.515, suggesting that improvements in internal factors could enhance digital competence by up to 0.515. Furthermore, the statistical significance of this relationship is supported by a t-statistic value of 10.192, which exceeds the critical threshold of 1.96. Despite being slightly lower than the effect of external factors, internal factors still show a substantial impact on digital competence at the structural level, as indicated by an F-square value of 0.374.

The hypothesis testing on the variable of digital competence with business sustainability has a path coefficient of 0.616, indicating a very strong positive relationship between digital competence and business sustainability. The extremely small p-value (0.000), which is below 0.05, signifies that this relationship is highly statistically significant, meaning that the higher the digital competence, the higher the level of business sustainability. Within a 95% confidence interval, the effect of external factors on enhancing digital competence ranges from 0.523 to 0.703. This means that any change or improvement in digital competence can increase its impact on business sustainability up to 0.703. It also has statistical significance with a t-statistic value of 13.251, which is greater than > 1.96. However, the presence of an increase in digital competence in business sustainability has a high impact at the structural level (F square of 0.613).

Based on the analysis results, it can be concluded that digital competence is affected by both external and internal factors. Both factors have a significant contribution to enhancing digital competence. Furthermore, digital competence has a very strong effect on business sustainability, meaning that improving digital competence can significantly increase the level of business sustainability.

DISCUSSION

The effect of internal factors on digital competence: The digital competence of MSME actors in the agricultural sector on Lombok Island, when viewed from internal factors measured by demographic indicators based on business ownership, is dominated by women. This illustrates the crucial role of women in the agro-processing business on Lombok Island. Women have a very high capacity in the field of agricultural product processing (Hayati, 2023). Women play an important role in MSMEs, both as business owners, workers, and consumers, and contribute to various aspects such as production, innovation, and networking (Widiarty, 2024). Therefore, it is necessary to educate women as business owners; thus, they can utilize digital technology for the sustainability of their businesses.

Enhancing digital literacy competence among MSME actors in the agricultural sector is currently necessary, as digital competence is one of the programs aimed at improving the skills and knowledge of MSME actors in utilizing digital technology in their business activities. Enhancing digital capacity enables individuals to effectively and efficiently complete complex tasks (Jones 2006). Enhancing the digital competence of MSME actors prepares them to be more adaptable and capable of adopting current digital technologies, thus enabling them to reach broader markets, increase revenue, and reduce operational costs more efficiently.

Fundamentally, the motivation of an MSME actor arises when driven by the needs of the enterprise itself, where the attitude of the actor is always oriented towards business goals, thus achieving their own satisfaction. Motivation is an effort by an individual to evoke enthusiasm within themselves to be willing to work to achieve the desired goals (Bandhu et al., 2024).

Based on the analysis of descriptions and interviews, MSME actors in the agricultural sector have a high motivation to advance their businesses using digital technology. Therefore, encouragement and support are necessary to enhance the digital competence of MSME actors through various mentoring programs and extension services, ensuring that their hopes for business sustainability are achieved. MSME mentoring can be conducted through motivational support, awareness and skill enhancement, self-management, and mobility (Anisa et al., 2023). Competence is defined as a quality based on personal characteristics, behavior, knowledge of values, motivation, and possessing skills; thus an individual performs well (Tampubolon and Pakuan, 2022). Digital competence will be successful if multiple parties are involved, such as government support through infrastructure provision and mentoring programs that involve extension officers who are specialized in their respective fields and possess high competence in current digital technology developments. Extension activities through mentoring programs can foster digitally oriented behavior among farmers, enabling them to understand, acquire skills, and



accept digital technology, as well as utilize it to access innovation information, production facilities, and market access (Suardi and Parining, 2023).

Based on the perception of MSME actors regarding the use of digital technology in their businesses, they recognize numerous benefits and advantages of utilizing digital devices such as mobile phones. The use of mobile phones significantly facilitates their business activities, such as obtaining information and serving as a communication tool to support their operations. Communicating through technological devices requires a communication strategy, thus business actors must be able to communicate effectively through innovative messages that capture attention and interest, thereby generating target audience interest in their products (Bischoff, 2023).

The perception of MSME actors after adopting digital technology in their businesses has shown a positive impact. This indicates that business actors have an interest in utilizing technology and a belief that the presence of digital technology in running their businesses can provide benefits, simplify operational processes, and ultimately increase profits. The use of information technology has had an impact on MSME actors, such as an increase in the number of new customers, a rise in the number of orders, an increased production volume, and higher revenue (Akhmad and Purnomo, 2021).

MSME actors should not only focus on the product marketing process but also be able to foster creativity in understanding the development of current digital technology. This will enable them to generate unique and distinctive product ideas that set them apart from competitors, innovate by combining product design and pricing in line with market rates, and develop new services through the utilization of digital technology. MSME actors must be capable of product innovation to avoid being left behind by competitors (Mashadi and Suardy, 2020). In line with the current advancements in digital technology, MSMEs in the agricultural sector must be creative in running their businesses, as creativity is essential for business operations. They must continuously undergo transformation, innovate, and grow to ensure business sustainability.

To achieve business sustainability, it is necessary to develop the digital competence of MSME actors through support from the government, universities, technology companies, and business communities. This support should provide continuous motivation, thereby enhancing the perception and creativity of MSME actors through extension activities and mentoring programs focused on the utilization and operation of digital technology devices.

The effect of external factors on digital competence: The results of the SEM-PLS analysis indicate that external factors have a significant impact on the digital competence of MSME actors. This means that their ability to use digital technology is highly affected by external support. In this study, external factors were measured through aspects such as the digital

devices used, customer purchasing behavior, government support, partnerships, and the quality of mentoring.

The intensity of digital device usage by MSME actors is categorized as good, as they use digital devices connected to the internet almost every day. The higher the intensity of technology usage, the greater the ability of MSME actors to operate technological devices (Yanti *et al.*, 2018). Therefore, MSME actors with high self-confidence in utilizing digital technology tend to be more communicative when interacting with customers.

Customer behavior is one of the key aspects that MSME actors must pay attention to. Understanding customer needs and desires is a strategy for a more effective marketing process, enabling them to dominate the market by selling products without geographical and time limitations while also building business networks.

The current trend of online shopping in society must be a concern for MSME actors to remain competitive in business competition. By continuously innovating and providing customer service, they can meet the evolving needs and desires of customers through the improvement of their digital competence. In Indonesia, 56% of internet users shop online using mobile devices (handphones) (Anonymous, 2024).

The steps that MSME actors, particularly in the agricultural sector, need to take include being responsive to these changes, starting from the marketing aspect, providing information to customers quickly, maintaining customer loyalty, and delivering faster service to customers.

In implementing this strategy, government involvement is also necessary, in line with the government's program to encourage MSMEs to go online through various policies, regulations, and training programs needed by MSME actors to adapt to current digital technology. Government involvement in aiding business actors in utilizing digital technology during the setup process is highly beneficial (Ahmad *et al.*, 2014).

The enhancement of MSME actors' digital competence through an extension approach via mentoring programs aims to improve their knowledge, skills, competence, and business management in developing products through digital marketing. Consistent and continuous mentoring and training programs are essential for MSMEs to survive and grow within the digital ecosystem (Wijoyo *et al.*, 2020). Mentoring programs can help MSME actors utilize the features of online applications (e-commerce) available on digital devices such as mobile phones, laptops, or tablets, enabling them to reach wider markets and compete competitively with foreign MSME actors.

The effect of digital competence on business sustainability: The digital competence of MSME actors in the agricultural sector on Lombok Island indicates a significant relationship between digital competence and business sustainability. This means that the higher the digital competence of business actors, the higher the level of sustainability of business. Smart



utilization of digital literacy can lead MSMEs to achieve superior and sustainable performance (Fadilah, 2024). This study measures digital competence through indicators such as the ability of MSME actors to access information, communicate, create content, possess technical skills, maintain data security, solve problems, and collaborate with other business actors.

MSME actors have developed the ability to compare information obtained from the internet, process it, and verify its accuracy before sharing it with others. They are also capable of understanding information presented in symbols or images and storing it on their digital devices. The use of the internet in business operations is not limited to information exchange but also serves as a platform for discussions, dialogues, and online consultations with customers (Yuliana, 2020).

The effectiveness of communication through digital technology by MSME actors can help build and maintain strong relationships with customers through continuous interaction and enable them to plan appropriate promotional strategies to reach their target audience effectively. The communication skills of MSME actors can foster an emotional connection between sellers and consumers, ultimately creating a positive perception of the products they offer (Maria *et al.*, 2024). MSME actors' ability to communicate through digital applications such as social media with customers aims to build relationships and enhance customer experience. This helps them navigate the ever-changing market challenges, seize greater growth opportunities, and compete in an increasingly competitive market, ultimately ensuring business sustainability.

The utilization of digital platforms or social media by MSME actors aims to market products through technology (digital marketing) based on relevant and creative content. MSME actors must be able to produce informative and engaging content that captures customers' attention while building the brand authority of their products. High-quality content should be tailored to the target customers, address their questions, and provide solutions to their needs (Suryani *et al.*, 2023).

The technical skills that MSME actors must possess include the ability to operate digital devices such as computers, laptops, tablets, and mobile phones connected to the internet, as well as the ability to create engaging digital content. Technical skills are fundamental competencies in running a business (Tokarčíková *et al.*, 2020). The expected technical skills include the ability of MSME actors to use browsers to search for information relevant to their business sector, such as sourcing raw materials, checking prices, understanding market conditions, and finding business partners.

The use of digital technology devices comes with risks that MSME actors must consider when adopting technology, such as ease of use, convenience, and security in protecting user data, customer data, and transaction data, which require proper protection. The security aspects that technology users

must maintain include device protection, personal data protection, health protection, and environmental protection (Seyfizadeh, 2024). MSME actors should focus more on safeguarding personal data, digital identity protection, business data security, and preventing digital fraud to ensure the safe and sustainable use of digital technology devices.

The ability to maintain security among MSME actors in the agricultural sector on Lombok Island has been technically established, such as creating passwords with a combination of numbers, letters, and punctuation marks, as well as changing passwords periodically. However, password security alone is not strong enough to protect accounts on digital devices, making additional security measures, such as two-factor authentication, necessary. Cybersecurity is highly important in the current digital era (Ramadhan, 2019).

Overcoming the limitations of MSME actors in maintaining digital security, such as protecting personal data and consumer identities, can be achieved through collaboration with various parties. Collaboration is a partnership between individuals and organizations to achieve a common goal (Raharja, 2010). The competencies that MSME actors must possess to integrate these various models include the ability to access and manage information, process information, design and share messages, protect personal identity, and build resilience.

MSME actors in the agricultural sector on Lombok Island are expected to collaborate with various groups, including MSME communities, digital communities, educational institutions, and local governments. Collaboration with these different elements is one of the ways to enhance the digital competence of MSME actors in the agricultural sector on Lombok Island. This digital competence enhancement is done in an integrated manner through market access, product quality improvement, and financial management capacity building. By adopting an integrated approach through collaboration with stakeholders, MSME actors can become more knowledgeable, prepared, resilient, and progressive in facing the challenges of the digital era.

Conclusion: Based on the analysis results and discussion, this study concludes that digital competence is affected by both internal and external factors. These two factors have a significant contribution to enhancing digital competence. Furthermore, digital competence has a very strong effect on business sustainability, meaning that an increase in digital competence can significantly improve the level of business sustainability.

Although this study has identified factors that affect digital competence for the sustainability of MSME actors in the agricultural sector, there are still limitations, as the focus remains on MSMEs involved in agricultural product processing. Therefore, further in-depth and broader studies are needed, including the social and cultural aspects of



developing digital competence among MSME actors in the agricultural sector.

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